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Report of the United Nations Scientific Committee on the Effects of Atomic Radiation

Sixty-first session
(21-25 July 2014)

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Sixty-ninth session
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Contents

Chapter		*Page*
I.	Introduction	1
II.	Deliberations of the United Nations Scientific Committee on the Effects of Atomic Radiation at its sixty-first session	3
	A. Present programme of work	4
	1. Radiation exposures from electricity generation and an updated methodology for estimating human exposures due to radioactive discharges	4
	2. Biological effects from selected internal emitters	4
	3. Cancer epidemiology of exposures at low dose-rates due to environmental radiation	5
	4. Collection of data on radiation exposures, in particular for an evaluation of medical exposures	5
	5. Outreach activities	6
	B. Future programme of work	6
	C. Administrative issues	6

Chapter I

Introduction

1. Since the establishment of the United Nations Scientific Committee on the Effects of Atomic Radiation by the General Assembly in its resolution 913 (X) of 3 December 1955, the mandate of the Committee has been to undertake broad assessments of the sources of ionizing radiation and its effects on human health and the environment.[1] In pursuit of its mandate, the Committee thoroughly reviews and evaluates global and regional exposures to radiation. The Committee also evaluates evidence of radiation-induced health effects in exposed groups and advances in the understanding of the biological mechanisms by which radiation-induced effects on human health or on non-human biota can occur. Those assessments provide the scientific foundation used, inter alia, by the relevant agencies of the United Nations system in formulating international standards for the protection of the general public and workers against ionizing radiation;[2] those standards, in turn, are linked to important legal and regulatory instruments.

2. Exposure to ionizing radiation arises from naturally occurring sources (such as radiation from outer space and radon gas emanating from rocks in the Earth) and from sources with an artificial origin (such as medical diagnostic and therapeutic procedures; radioactive material resulting from nuclear weapons testing; energy generation, including by means of nuclear power; unplanned events such as the nuclear power plant accidents at Chernobyl in 1986 and following the great east-Japan earthquake and tsunami of March 2011; and workplaces where there may be increased exposure to artificial or naturally occurring sources of radiation).

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[1] The United Nations Scientific Committee on the Effects of Atomic Radiation was established by the General Assembly at its tenth session, in 1955. Its terms of reference are set out in resolution 913 (X). The Committee was originally composed of the following Member States: Argentina, Australia, Belgium, Brazil, Canada, Czechoslovakia (later succeeded by Slovakia), Egypt, France, India, Japan, Mexico, Sweden, Union of Soviet Socialist Republics (later succeeded by the Russian Federation), United Kingdom of Great Britain and Northern Ireland and United States of America. The membership of the Committee was subsequently enlarged by the Assembly in its resolution 3154 C (XXVIII) of 14 December 1973 to include the Federal Republic of Germany (later succeeded by Germany), Indonesia, Peru, Poland and the Sudan. By its resolution 41/62 B of 3 December 1986, the Assembly increased the membership of the Committee to a maximum of 21 members and invited China to become a member. In its resolution 66/70 of 9 December 2011, the Assembly further enlarged the membership of the Committee to 27 and invited Belarus, Finland, Pakistan, the Republic of Korea, Spain and Ukraine to become members.

[2] For example, the international basic safety standards for radiation protection and safety of radiation sources, currently co-sponsored by the European Commission, the Food and Agriculture Organization of the United Nations (FAO), the International Atomic Energy Agency (IAEA), the International Labour Organization, the Nuclear Energy Agency of the Organization for Economic Cooperation and Development, the Pan American Health Organization, the United Nations Environment Programme and the World Health Organization (WHO).

Chapter II

Deliberations of the United Nations Scientific Committee on the Effects of Atomic Radiation at its sixty-first session

3. The Scientific Committee held its sixty-first session in Vienna from 21 to 25 July 2014.[3] Carl-Magnus Larsson (Australia), Yoshiharu Yonekura (Japan) and Michael Waligórski (Poland) served as Chair, Vice-Chair and Rapporteur, respectively. The session had originally been planned for 26 to 30 May 2014. However, in January 2014, the Chair and the secretariat recognized that the extensive work needed to complete the Committee's assessment of the levels and effects of radiation exposure due to the accident at the Fukushima Daiichi nuclear power station would affect the preparations for the session. After consultation with representatives to the Committee, the Committee decided to postpone the session to July to allow sufficient time for preparing the necessary documents.

4. The Committee took note of General Assembly resolution 68/73 on the effects of atomic radiation. It also recalled paragraph 18 of General Assembly resolution 66/70 of 9 December 2011, in which the Assembly had requested the Secretary-General to report to it at its sixty-ninth session "on the experience of the increase in the membership of the Scientific Committee to twenty-seven States" and "on options for further increase procedures" (para. 18). The Committee decided to set out, at its sixty-second session, long-term strategic directions beyond the period covered by its present strategic plan (2014-2019), so as to help inform future deliberations of the Assembly on the Committee's membership.

5. The Committee reflected on the two substantive scientific reports that had been published since the sixtieth session, the process for finalizing them, and their impact. The first report presented the results of an assessment of the levels and effects of radiation exposure due to the Fukushima Daiichi accident. The second report, on the effects of radiation exposure on children, was published in October 2013 following approval at the Committee's sixtieth session.

6. The report on the levels and effects of radiation exposure due to the Fukushima Daiichi accident had required extensive work by experts, delegations and the secretariat after the sixtieth session in order to finalize it for publication. The Committee recognized the quality of the scientific report and appreciated the immense efforts that had been made to finalize it. It had been presented to the media in English in Vienna on 2 April 2014, and an advance copy of a Japanese translation of the main text was presented in Fukushima Prefecture on 27 May 2014. The report was received favourably by Government authorities in Japan, the international scientific community and the media.

7. The Committee confirmed the Governing Principles for its work, which set out its mandate, the manner in which it conducts its business, and the tasks of the representatives, alternates and advisers nominated by Governments.

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[3] The sixty-first session was also attended by observers for WHO, IAEA, the International Commission on Radiological Protection and the International Commission on Radiation Units and Measurements.

8. The Committee noted that the Fukushima Daiichi accident had required ad hoc arrangements to accelerate the production of reports on the matter between its formal sessions, and considered that similar needs might arise in the future.

9. The Committee adopted terms of reference formally establishing its Bureau, which had thus far existed as an informal body known as "the executive" and had been made up of the Committee's officers. In line with the Conclusions of the Special Committee on the Rationalization of the Procedures and Organization of the General Assembly,[4] the Committee decided to increase the number of its vice-chairs by two. Because of this change, it also decided to postpone electing officers for the sixty-second and sixty-third sessions until the beginning of the sixty-second session.

A. Present programme of work

1. Radiation exposures from electricity generation and an updated methodology for estimating human exposures due to radioactive discharges

10. The Committee discussed two draft scientific annexes, one on an evaluation of radiation exposures from electricity generation and the other on updating the Committee's methodology for estimating human exposures due to radioactive discharges into the environment. The Committee noted that the update of the existing methodology and associated document was now well advanced, and identified the issues that needed addressing before the annex could be approved. It also acknowledged the work done by the United Kingdom of Great Britain and Northern Ireland to develop for the Committee associated electronic spreadsheets that implemented the current methodology; it noted that they would require some modifications and clarifications before they were ready for approval. The spreadsheets would be used in conducting the subsequent assessment of radiation exposures of populations from various types of electricity generation. The Committee expected that the document on an updated methodology for estimating human exposures due to radioactive discharges would be ready for approval at its sixty-second session.

11. The Committee noted that progress on the draft scientific annex on radiation exposures from electricity generation had been limited by, among other things, large gaps in the available data on releases associated with electricity generated from non-nuclear energy sources, in contrast to the thorough data collection and monitoring required of the nuclear energy industry. The Committee expected that the document on radiation exposures from electricity generation would be ready for consideration at its sixty-second session.

2. Biological effects from selected internal emitters

12. The Committee discussed progress on evaluations of the biological effects of exposure to selected internal emitters for two specific radionuclides: tritium and uranium. It noted that there could be merit in conducting evaluations of this nature for caesium and iodine in the near future, in view of their importance in the context of nuclear accidents. Major revisions to the evaluation on tritium involved the

[4] *Rules of Procedure of the General Assembly* (United Nations publication, Sales No. E.85.I.13), annex IV.

inclusion of information on tritium measurement techniques, a revision of tables and text on relative biological effectiveness, a revision of the chapter on epidemiology and the inclusion of a section on future research needs. The Committee considered that an updated version of the document could be presented with a view to approval at the sixty-second session of the Committee.

13. Uranium is both radioactive and a heavy metal. Therefore, major revisions to the evaluation on uranium would involve further clarification of the mechanisms leading to radiological and chemical effects in various tissues and organs. Additional revision work would be needed on chapters discussing evaluation of epidemiology and implications for risk assessment, uncertainties and research needs.

3. Cancer epidemiology of exposures at low dose-rates due to environmental radiation

14. The Committee discussed progress on an evaluation of epidemiological studies of low-dose-rate exposures of the public to naturally occurring and artificial environmental sources of radiation. The Committee acknowledged that the scientific review had continued to advance. However, it stressed that the review needed to be aligned with the criteria for good-quality epidemiological studies set out in its 2006 report on the effects of ionizing radiation.[5]

4. Collection of data on radiation exposures, in particular for an evaluation of medical exposures

15. The Committee took note of a progress report by the secretariat on developing an evaluation of medical exposures. Exposures of patients undergoing medical procedures represent the most significant source of artificial exposure to ionizing radiation, and technology and practices in this area change rapidly. This subject had been highlighted as a thematic priority in the Committee's strategic plan (2014-2019). The secretariat had developed and tested an online platform for collection of data on medical exposures, and was inviting all Member States to take part in the survey and to nominate a national contact person. It had also fostered close cooperation with the International Atomic Energy Agency (IAEA), the World Health Organization (WHO) and the International Radiation Protection Association, in preparation for the Committee's next Global Survey of Medical Radiation Usage and Exposures, in the third quarter of 2014. The Committee expected to review a preliminary evaluation of results at the sixty-second session.

16. The Committee recalled that the General Assembly had regularly (a) encouraged Member States, the relevant organizations of the United Nations system and other pertinent organizations to provide further relevant data about doses, effects and risks from various sources of radiation, which would help greatly in the preparation of future reports of the Committee to the Assembly; and (b) encouraged IAEA, WHO and other relevant organizations to further collaborate with the Committee's secretariat to establish and coordinate the arrangements for the periodic collection and exchange of data on radiation exposures of the general public, workers and, in particular, patients.

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[5] United Nations publication, Sales No. E.08.IX.6.

5. Outreach activities

17. The Committee took note of a progress report by the secretariat on outreach activities, and acknowledged in particular the work done to disseminate the Committee's report on the levels and effects of radiation exposure due to the Fukushima Daiichi accident. It took note of the outreach strategy for the coming years, in particular with regard to further enhancing the public website of the Committee, publishing an update to the United Nations Environment Programme (UNEP) booklet "Radiation: doses, effects, risks", noting upcoming anniversaries (such as the sixtieth anniversary of the Committee's inception, the thirtieth anniversary of the Chernobyl accident and the fifth anniversary of the nuclear accident in Japan), developing leaflets and posters and publishing booklets in the six official languages of the United Nations to explain the findings of its recent reports to the general public.

B. Future programme of work

18. At its sixtieth session, the Committee decided that the work to assess the levels of exposure and the radiation risks resulting from the Fukushima Daiichi accident and to complete an extensive review of the effects of radiation exposure on children should take priority over other evaluations and activities initiated as part of the present programme of work. Because the finalization of those two studies, in particular the one on the Fukushima Daiichi accident, had taken longer and had required more effort from experts and the secretariat than had been foreseen, the progress on the other ongoing evaluations had been delayed. The Committee agreed that the focus must be on expediting the completion of those evaluations.

19. However, the Committee requested the secretariat to submit for consideration at its sixty-second session preliminary plans for developing evaluations concerning four topics: the health effects of low-dose radiation exposure, selected evaluations of risk to health from radiation exposure, an evaluation of the risk of second cancers after radiotherapy, and follow-up activities to update and consolidate some of the findings and conclusions of the Committee's assessment of the radiological consequences of the Fukushima Daiichi accident. The Committee asked the secretariat to promptly develop a standing mechanism to stay aware of new scientific developments in the follow-up to the accident. That mechanism should be based on the ad hoc arrangements that had been developed for conducting its recent assessment of the accident. The Committee also asked the secretariat to report annually on the implications for the Committee's programme of work.

C. Administrative issues

20. The Committee welcomed developments in streamlining procedures for publishing its reports as sales publications. The Committee recognized that, while maintaining quality, the timeliness of their publication was essential to fulfilling the expected accomplishments approved in the programme budget, and that continued attention was required to have reports published in the same year in which they are approved.

21. The Committee recognized that, because of the need to maintain the intensity of its work and particularly to improve the dissemination of its findings, voluntary contributions to the general trust fund established by the Executive Director of UNEP to receive and manage voluntary contributions to support the work of the Committee would be beneficial. The Committee suggested that the General Assembly might encourage Member States to consider making voluntary contributions to the general trust fund for this purpose or to make contributions in kind.

22. The Committee agreed to hold its sixty-second session in Vienna from 1 to 5 June 2015.